

Hanford Advisory Board Draft Advice

Originating Committee: River and Plateau
Topic: 100-B/C Proposed Plan
Authors: Tom Sicilia, Jan Catrell, Gerry Pollet, Marissa Merker, Liz Mattson, Shelley Cimon
Originating Committee: River and Plateau
Version # Final Draft

Color: Pink Yellow Green Buff Purple Blue Goldenrod **X**

100-B/C PROPOSED PLAN

Working Title: Supplemental Advice On 100-B/C Proposed Plan

Issue Managers: Tom Sicilia, Jan Catrell, Gerry Pollet, Marissa Merker, Liz Mattson, Shelly Cimon.

100-B/C PROPOSED PLAN BACKGROUND

The Hanford Advisory Board (HAB) appreciates the opportunity to provide advice on the Proposed Plan for 100-B/C Area, in the river corridor. 100-B/C contains the first large-scale plutonium production reactor in the world, and as such, the longest legacy of waste disposal. Through its inclusion in the Manhattan Project National Historic Park, B reactor will be the public-facing artifact of the Hanford mission – including the cleanup mission – for generations to come. The B/C Reactor Areas are also the upstream entry to the Hanford Reach National Monument and are immediately downstream of Vernita Bridge, where hundreds of people access areas of the Hanford Reach. This continuing, tangible legacy and prominent access dictate that additional care be taken to ensure the protectiveness of future remediation decisions.

Interim clean-up actions have remediated a majority of the shallow soils in the 100-B/C Area. Under the Preferred Alternative, areas and resources immediately adjacent to the River’s shorelines and the B-Reactor would have to be restricted from the public and tribal use in accordance Treaty Rights – for hundreds of years to prevent exposures with potential health consequences. If the Preferred Alternative is implemented, we are concerned that the Department of Energy has not documented the strategy to responsibly manage those areas of contamination, which would remain in place for the timeframe necessary. The Board continues to prefer active remediation.

When the proposed plan for 100-B/C was issued in draft form, the HAB issued consent advice #296 (Attachment 1). In their response to #296 (Attachment 2), the United States Department of Energy-Environmental Management (DOE-EM) stated that “when the finalized Proposed Plan is issued for public comment, the HAB will have the opportunity to review and issue advice on the document during the public comment period.” The concepts in advice #296 continue to be consistent with our Board values, with a preference for removal, treatment, and disposal (RTD); active groundwater remedies to reduce the hexavalent chromium plume’s impact from 60 years to 15; and realistic institutional control periods - which should never exceed 100 years. With these parameters still firmly agreed upon, the Board resubmits consensus advice #296 for formal response. The Board also wishes to include the following context in support of its additional points of advice to the Tri-Party agencies in light of the Preferred Alternative in the Proposed Plan.

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ENSURING INSTITUTIONAL CONTROLS (ICS) ARE REASONABLE AND PROTECTIVE

The HAB agrees that Institutional Controls (ICs) are a tool of last resort that can be protective of human health and the environment if properly implemented, monitored, and maintained. However, consistent with Advice #296, the Board advises the agencies to take advantage of significant cost and risk reduction by being strategic and choosing source areas for RTD that would otherwise result in thousands or tens of thousands of years of IC maintenance. DOE-EM should take necessary actions to ensure that Institutional Controls along the river shoreline is consistent with Treaty rights, the Hanford Reach National Monument status, and the Shoreline Management Act (RCW Chapter 90.58) and, additionally, that tribal governments are consulted prior to the issuance of the decision to ensure compliance with Treaties. The National Historic Preservation Act (NHPA) requires surveying for and working to ensure safe access to religious, cultural and archaeological resources. If ICs are employed to manage risk, they should include specific monitoring and action plans which encompasses the following periodic tasks (among others):

- Elevation surveys to confirm that there continues to be 15 feet of compliant soil covering contamination in “deep” contamination sites;
- Riverbed surveys to ensure contaminated discharge pipelines to be left in the river are not degraded and are still “inaccessible” If pipeline segments are damaged and become mobilized, there is a potential exposure risk for the public where they wash up;
- Groundwater, surface water, and biological monitoring directly down-gradient of waste sites with contaminated vadose zone soils and for river shoreline groundwater discharges;
- A plan to ensure that groundwater use for visitor and museum facilities is restricted because new withdrawals from the Columbia River is highly unlikely; and
- Use of a tribal exposure scenario to calculate potential exposures from the remaining contamination, including calculations for how long restrictions would have to remain in place. This would avoid exposures with the potential to cause risks in excess of applicable cancer and other health-based cleanup standards.

The Board notes that under the Preferred Alternative in the Proposed Plan, DOE-EM will be obligated to perform a total of 6,000 CERCLA 5-Year Reviews before the last left-behind contamination in the 100-B/C soil has decayed to unrestricted levels in the year 32,021. The Board’s preference is for active remediation to reduce an unimaginable long-term monitoring scope. If the Preferred Alternative is implemented, the Board advises that this monitoring commitment be memorialized in the Record of Decision and that the related lifetime cost estimates are included in the CERCLA evaluation process.

MEMORIALIZING INSTITUTIONAL CONTROLS AND EDUCATING PUBLIC VISITORS

The HAB recommends that DOE-EM work with the National Park Service (NPS) and the Hanford Advisory Board Public Involvement Committee (PIC) to develop informational placards at institutional control sites around the B-reactor area for the benefit of visitors to the reactor (e.g. “The soil 20 feet below this sign will be contaminated with carbon-14 until the year 32,021. You, a visitor separated by 20 feet of soil, are not at risk from this material and we are making sure that there is still 20 feet protecting you.”). Public outreach, describing the challenges and successes of remediation and the ways that risk is reduced, will help to tell the full story in a compelling and non-threatening way and explain why areas visible to visitors are restricted.

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PROTECTION OF GROUNDWATER AND SELECTION OF MONITORING PARAMETERS

The 100-B/C Remedial Investigation/Feasibility Study (RI/FS) states that groundwater impacts only need to be projected for 1,000 years per Tri-Party Agency Agreement. This rationale is not protective of groundwater use when contaminants are slow to move but long-lived. The deep contamination at waste site 118-B-8:4 will be present in the vadose zone at concentrations above applicable standard for 30,000 years. To ensure transparency and public support of closure decisions, we recommend that the contaminant transport modeling should extend to peak groundwater concentration and not be arbitrarily cut off at 1,000 years. This would help to build trust that drinking water quality will not be threatened during the IC period and that all due diligence has been taken in the modeling and the evaluation process. Additionally, varying assumptions and estimation methods were applied in waste site closure reports to approximate the contaminant mass remaining below a remediated waste site where characterization data was not available. Especially at depth, changes in groundwater elevation and an uncertain contaminant mass in the vadose zone could potentially cause contamination spread which is unforeseen in the conceptual modeling at each site. As such, planned groundwater monitoring for Monitored Natural Attenuation (MNA), that includes all soil contaminants of concern, should be frequent enough to measure and bound a trend analysis early in the process. By collecting this data at the onset of the MNA remedy, DOE will be able to quickly confirm whether the selected remedy is performing in a manner that is consistent with the assumptions in the conceptual model.

We appreciate your consideration and look forward to continuing this discussion.

100-B/C PROPOSED PLAN ADVICE

The Board advises the TPA Agencies to:

- Fully respond to HAB consensus advice #296;
- Remediate areas adjacent to the Columbia River. Institutional Controls with Monitored Natural Attenuation should only be utilized in areas that are not likely to attract significant tribal and public usage;
- Calculate the projected cost of CERCLA reviews and long-term management for more monitoring for a timeframe in excess of 30,000 years, the Preferred Alternative would require more than the current 150-year estimate.
- Include documentation of treaty and shoreline management considerations (RCW Chapter 90.58) in the Record of Decision.
- Utilize a tribal exposure scenario.
- Include the public in the development of monitoring and maintenance plans for Institutional Control and Monitored Natural Attenuation periods; including frequency (near-term), duration, and parameter lists;
- Work with the Hanford Advisory Board Public Involvement Committee and the National Parks Service to provide placards for Institutional Controls which will be stationed within the museum footprint, describing the challenges and successes of remediation, including the ways that risk is reduced.
- Plan for groundwater, surface water, and biological monitoring down-gradient of waste sites to manage uncertainty for (vadose zone) deep soil contamination, and for discharges along or into the Columbia River. Monitoring will serve the additional purpose of confirming that Monitored

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Natural Attenuation is performing as modeled and that potential human and/or ecological receptors are being protected.

- Have published, enforceable plans to prevent intrusion, exposure, removal of soil, or use of water without impacting Treaty or NHPA rights and are consistent with restrictions on water withdrawals and access to the Hanford Reach National Monument.